WHAT IS CLAIMED IS:

1. A method of sensing multiple parameters, comprising the steps of:

providing an interferometric fiber optic sensor;

connecting a variable wavelength light source to the sensor;

measuring a relatively low frequency signal by transmitting light from the light source through the sensor, the light output from the light source being swept over a range of wavelengths; and

measuring a relatively high frequency signal by transmitting light from the light source through the sensor, the light output from the light source being maintained at a relatively constant wavelength.

2. The method according to Claim 1, wherein in the providing step, the fiber optic sensor is an interferometric sensor having two optical paths, one of the optical paths changing in length in response to a change in a parameter sensed by the sensor.

3. The method according to Claim 2, wherein the interferometric sensor includes a selected one of a Mach-Zehnder interferometer and a Michelson interferometer.

4. The method according to Claim 1, wherein in the connecting step, the light source is a tunable laser.

5. The method according to Claim 1, wherein the low frequency signal measuring step further comprises determining a relationship between an optical output of the sensor and the swept range of wavelengths.

6. The method according to Claim 5, wherein the determining step further comprises determining an amplitude of the optical output as a function of wavelength.

7. The method according to Claim 1, wherein the high frequency signal measuring step further comprises measuring a frequency of an optical output of the sensor over time.

8. The method according to Claim 1, wherein:

the connecting step further comprises connecting the light source to multiple ones of the sensors;

the low frequency signal measuring step further comprises measuring relatively low frequency signals at each of the sensors by transmitting light from the light source through each of the sensors, the light output from the light source being swept over the range of wavelengths; and

the high frequency signal measuring step further comprises measuring relatively high frequency signals at each of the sensors by transmitting light from the light source through each of the sensors, the light output from the light source being maintained at the relatively constant wavelength.

9. The method according to Claim 1, wherein the signal is a pressure signal.

10. A fiber optic sensor system for use in measuring relatively low frequency and relatively high frequency signals, the system comprising:

at least one interferometric fiber optic sensor exposed to the signals in the well; and

a variable wavelength light source connected to the sensor, the light source transmitting a sweep of light wavelengths through the sensor and transmitting a relatively constant wavelength through the sensor.

11. The system according to Claim 10, wherein the light source alternately transmits the sweep of wavelengths and the relatively constant wavelength through the sensor.

12. The system according to Claim 10, further comprising an opto-electric converter connected to an optical output of the sensor.

13. The system according to Claim 12, wherein an electrical output of the converter is input to a computer which is connected to the light source, the computer controlling the wavelength of the light output by the light source.

14. The system according to Claim 10, wherein the sensor includes an interferometer having two optical paths, one of the optical paths changing in length in response to a change in a parameter sensed by the sensor.

15. The system according to Claim 14, wherein the interferometer is a selected one of a Mach-Zehnder and a Michelson interferometer.

16. The system according to Claim 10, wherein the light source is a tunable laser.

17. The system according to Claim 10, further comprising multiple ones of the sensor, and wherein the light source transmits the sweep of light wavelengths through each of the sensors and transmits the relatively constant wavelength through each of the sensors.

18. A fiber optic sensor system for use in measuring relatively low frequency and relatively high frequency pressure signals in a subterranean well, the system comprising:

at least one interferometric fiber optic sensor exposed to the pressure signals in the well; and

a variable wavelength light source connected to the sensor, the light source transmitting a sweep of light wavelengths through the sensor and transmitting a relatively constant wavelength through the sensor.

19. The system according to Claim 18, wherein the light source alternately transmits the sweep of wavelengths and the relatively constant wavelength through the sensor.

20. The system according to Claim 18, further comprising an opto-electric converter connected to an optical output of the sensor.

21. The system according to Claim 20, wherein an electrical output of the converter is input to a computer which is connected to the light source, the computer controlling the wavelength of the light output by the light source.

22. The system according to Claim 18, wherein the sensor includes an interferometer having two optical paths, one of the optical paths changing in length in response to a change in pressure applied to the sensor.

23. The system according to Claim 22, wherein the interferometer is a selected one of a Mach-Zehnder and a Michelson interferometer.

24. The system according to Claim 18, wherein the light source is a tunable laser.

25. The system according to Claim 18, further comprising multiple ones of the sensor, and wherein the light source transmits the sweep of light wavelengths through each of the sensors and transmits the relatively constant wavelength through each of the sensors.